Yahoo Group Archive: 817keypad

Yahoo Group summary: IK1ZYW Keypad for FT-817

These Yahoo Groups messages were archived in WARC format by ArchiveTeam in 2018. This PDF was generated by Digital Library of Amateur Radio & Communications from the WARC files in 2026.

Date span: 2008-12-29 through 2012-10-10

Source WARC: 817keypad.hXY8Mlx.warc.gz

Source item: https://archive.org/details/yahoo-groups-2018-07-08T16-25-02Z-bff624

Messages included in this PDF: 62

Yahoo replaced the domain portions of email addresses with @... in the archived messages. Characters lost in Yahoo's archived text appear as ?.

Messages are presented in ascending Yahoo message-ID order. Gaps indicate records absent from the source WARC or messages omitted from this PDF as spam.

1. New feature: menu quick jump

Yahoo group: 817keypad
Date: 2008-12-29 14:25:52 UTC
From: Paolo Cravero
Topic: 1 Message: 1

Santa Claus 2008 has made possible a new feature on the keypad: "Menu Quick Jump."

This is the description from the next Keypad Manual to be released.

ZCZC
The main reason this keypad has been created was to extend FT-817 nested menu system and give easier access to useful and often retouched settings.

Unfortunately some parameters cannot be easily controlled with the keypad because they are VFO and band specific (like IPO, ATT and NAR). But there is a good news: the keypad can change the A-B-C submenu page. Instead of pressing "F" then rotating the SEL control, you press "D" followed by the key assigned to the wanted menu page. It is possible to have a workaround to the VFO&band specific setting barrier: menu functions are 3 key presses away, two on the keypad and one on the FT-817.
NNNN

Example. Need to disable the narrow filter, but your ABC keys are on the [A/B A=B SPL] page? Press "D", press "6" and there you are! Now FT-817 key "C" will switch off the NARrow filter.

A new version of the manual will be released soon.
Paolo IK1ZYW

2. Files updated: manuals, diagram

Yahoo group: 817keypad
Date: 2009-01-08 11:25:30 UTC
From: Paolo Cravero
Topic: 2 Message: 2

In the Yahoo Group webspace I have uploaded the newest version of the User's Manual and the latest circuit diagram. These are the same available on the keypad webpage.

The variation in the circuit diagram consists in the removal of the reset button and related pull-up resistor. If a power on-off switch is installed, then the reset button is not needed: just power cycle the keypad. It is ready in few microseconds after powerup, so no need for a dedicated reset control.

Paolo IK1ZYW

3. Files updated: manuals, diagram

Yahoo group: 817keypad
Date: 2009-01-21 10:56:45 UTC
From: Paolo Cravero
Topic: 2 Message: 3

I have released a slightly modified version of the user's manual, mainly to include the new circuit diagram.

The circuit diagram now shows wiring to the ACC plug, so you don't have to look it up in the manual.

Paolo IK1ZYW

PS: there are now 4 documented and satisfied users of the keypad.

4. Hardware change alert - updated circuit diagram

Yahoo group: 817keypad
Date: 2009-01-22 10:36:38 UTC
From: Paolo Cravero
Topic: 4 Message: 4

Hello.
A keypad user has reported me a weird behavior when an on/off switch is installed. Basically the keypad stays powered even in the off position because of the +5V present on the TXD idle line. This voltage is generated by the FT817.

I tried to add a BJT/FET buffer, but didn't solve the problem.

So the easiest, backward compatible modification, is to use a double pole single throw (DPST) switch that interrupts both the +13.8V AND TXD lines.

The circuit diagram has been modified to reflect this change.

Paolo IK1ZYW

5. Note on FT-857 / FT-897 compatibility

Yahoo group: 817keypad
Date: 2009-01-29 11:35:08 UTC
From: Paolo Cravero
Topic: 5 Message: 5

I have received inquiries about the usage of my keypad on devices different from the FT-817(ND).

At the time being, January 2009, I have not been able to verify that common functions do work on all these models. Neither I have received reports of someone that tried it.

On paper, according to respective Owner's Manuals of the 3 RTXes, these assumptions can be made:
- ACC port wiring is the same on all 3 models
- CAT protocol format is in common
- standard commands (ie published ones) are in common

So there should be no reason why basic functions of the keypad should not be "portable" amongst the three.

However the current firmware has been developed for FT-817 and tested only on FT-817. I am looking for a local 857/897 owner to do a real test and certify the firmware on those devices too.

In any case, all those functions listed on the keypad User's Manual as FT-817 only, must not be used on FT-857/897: you might damage your radio.

Yaesu FT-100 uses a different CAT protocol format, therefore IK1ZYW FT-817 keypad cannot be used on it.

73,
Paolo IK1ZYW

6. Manual Tune, Timed Tuning and Lazy PTT

Yahoo group: 817keypad
Date: 2009-02-03 12:36:16 UTC
From: Paolo Cravero
Topic: 6 Message: 6

Hi.
While developing a custom firmware for the keypad, I came up with three more possible functions.

The first is a review of the Quick Tune. Rather than sending a carrier for 5 seconds, the operator controls the duration. One key press sets the radio in FM mode and TX, then another key press returns your trusty Yaesu back to the original mode, in RX. This allows to have shorter and longer tuning times. Let's call it *Manual Tune*.

In between this new function and the original 5 seconds Quick Tune, lies *Timed Tuning*. 15 levels of delay are preset, so you can chose whether to tune for 1 second, 2s, 5s ... up to 15 seconds. It requires two key presses.

Finally, the *Lazy PTT* is for heavy ragchewers, those operators that speak for minutes before listening back for comments. Press a button, your radio goes into TX. Press again and the PTT is electronically released. No timeout, so watch out! This is a good substitute to VOX operation.

These functions should work on 817, 857 and 897.

7. April 2009 updates

Yahoo group: 817keypad
Date: 2009-04-20 11:36:41 UTC
From: Paolo Cravero
Topic: 7 Message: 7

Hi.
I hope you are enjoying Spring. During this long silence few new features have been tested, as well as a new daughter has arrived in the family (= less time for the keypad and all lab activities).

First of all, I have added support for a status LED (green), that is ON when the keypad is in the main menu/idle. For single key press functions (such as A/B), the LED is always ON, while it stays OFF for those sequences requiring several inputs (like direct frequency dial).
The LED is now shown on the updated schematic diagram, but its use is optional. I will soon release an updated free firmware that supports the status LED.

I have also implemented and tested few more functions: A=B, AGC control, PBT on/off, BK on/off, FaST tuning on/off, Split on/off, RIT on/off, Lock. The latter three should also work on FT-857/FT-897.

Hopefully soon I will be able to certify "common" Yaesu functions on FT-817, FT-857 and FT-897, so to produce a cross-radio firmware.

So far the known keypad user base is of 25 operators: these are those who ordered a pre-programmed chip from me. I have no idea how many people programmed the chip on their own.

I have updated keypad web pages with new diagram and manual.

73,
Paolo IK1ZYW

8. Upload my keypad photos.

Yahoo group: 817keypad
Date: 2009-05-12 12:56:28 UTC
From: jj1wkn599
Topic: 8 Message: 8

I made IK1ZYW Keypad for FT-817.
I have not found keypad module in my junk box,
so put on 16 tact switches.
Also I made case for keypad of plastic board.

73.

9. Re: Upload my keypad photos.

Yahoo group: 817keypad
Date: 2009-05-19 13:28:29 UTC
From: jj1wkn599
Topic: 8 Message: 9

--- In 817keypad@yahoogroups.com, "jj1wkn599" <jj1wkn599@...> wrote:
>
> I made IK1ZYW Keypad for FT-817.
> I have not found keypad module in my junk box,
> so put on 16 tact switches.
> Also I made case for keypad of plastic board.
>
> 73.
>

I made another Keypad for desktop use, using 14x14mm push switch.

My Blog, but in Japanese only.
http://blog.goo.ne.jp/jj1wkn/e/ed43f08dd5fe560d3c84871dc4edd615

73.

10. Re: Upload my keypad photos.

Yahoo group: 817keypad
Date: 2009-05-20 15:16:39 UTC
From: Paolo Cravero
Topic: 8 Message: 10

Excellent work dear OM!
Thank you for sharing your pictures.

I also noticed that you changed key positions a bit.

I am considering to build a final keypad for myself (I still use development boards!) using normal pushbuttons instead of a ready made keypad. Installing the keypad in a enclosure requires a bit of manual work with saw and file, which is not my field. Better drill 16 holes, HI.

73 ES HPE CU on the bands
Paolo IK1ZYW

11. Ongoing tests: 857/897, 38400 baud, Icom

Yahoo group: 817keypad
Date: 2009-11-04 10:39:47 UTC
From: ik1zyw
Topic: 11 Message: 11

Hello to all subscribers and external readers,
I want to share a short update on what is going on with the keypad.

I am waiting for some feedback regarding a common firmware for FT-817, FT-857 and FT-897 from a builder.

A YO HAM who tried the keypad at 38400 baud (custom firmware) reported communication errors towards the FT-817 that hang the radio. I will try to add small software delays between data packets sent to the radio and see if it works reliably. In case the test is positive I will add a hardware "boot option" to select baud rate with a jumper (4800 default, 38400).

On a different channel I will try to use the same keypad hardware to control ICOM transceivers using their CI-V protocol. The firmware will be totally different from the current, so co-existence of both protocols on one chip is impossible.

73,
Paolo IK1ZYW

12. New gadget: external display

Yahoo group: 817keypad
Date: 2010-04-09 15:30:01 UTC
From: ik1zyw
Topic: 12 Message: 12

Dear FT-817 keypad owners, users, friends,
I am announcing a soon-to-be-released new gadget for FT-817 series: an external frequency/mode display.

It generated from a direct request of a HAM that operates mainly mobile and needs a replica of the display where it can be easily seen, ie on the dashboard, while radio controls stay near the gear lever. Nothing more.

Using the very same hardware of the keypad, I interfaced a 2x16 LCD display using standard CAT commands so that frequency and mode are displayed remotely.

The update rate is software set, currently at 250 milliseconds.

I will investigate the opportunity to display other info on the second line, and your suggestions are welcome too.

Meanwhile have a look at the preview video I filmed this morning:
http://www.youtube.com/watch?v=oVdQy0PRF_s

The board holding the ATtiny microcontroller is the one of my keypad. Some one-button controls could be added around the display, mimicking some keypad functions, as long as there is room on the uC EEPROM.

I will release a firmware HEX file in the next days, as testing proceeds.

I welcome all your feedback.
Paolo IK1ZYW

PS: do not ask for an all-in-one display+microphone, it is out of question.

13. Re: [817keypad] New gadget: external display

Yahoo group: 817keypad
Date: 2010-04-09 20:19:44 UTC
From: Cristian Radulescu
Topic: 12 Message: 13

Hi Paolo,
Very good job!!!
I saw also the display made by some ham in VK or ZL but I do not like the Motorola micro's very much.
I will be very honoured to test it as soon as you will post the firmware.
I wonder if it may be combined with your keypad to form some sort of remote front panel? It would be super nice (maybe by using a bigger microcontroller).
I remember we cooperated when I asked you to recompile the firmware for the keypad for 38 Kbaud in order to match the FT-817+Z817 combo. It works very well. Thanks again.
As a suggestion I think making the second line of the display as on the FT itself would be very good.
73's de YO3IAZ, Cristian

--- On Fri, 4/9/10, ik1zyw <ik1zyw@...> wrote:

From: ik1zyw <ik1zyw@...>
Subject: [817keypad] New gadget: external display
To: 817keypad@yahoogroups.com
Date: Friday, April 9, 2010, 6:30 PM

Dear FT-817 keypad owners, users, friends,
I am announcing a soon-to-be-released new gadget for FT-817 series: an external frequency/mode display.

It generated from a direct request of a HAM that operates mainly mobile and needs a replica of the display where it can be easily seen, ie on the dashboard, while radio controls stay near the gear lever. Nothing more.

Using the very same hardware of the keypad, I interfaced a 2x16 LCD display using standard CAT commands so that frequency and mode are displayed remotely.

The update rate is software set, currently at 250 milliseconds.

I will investigate the opportunity to display other info on the second line, and your suggestions are welcome too.

Meanwhile have a look at the preview video I filmed this morning:
http://www.youtube. com/watch? v=oVdQy0PRF_ s

The board holding the ATtiny microcontroller is the one of my keypad. Some one-button controls could be added around the display, mimicking some keypad functions, as long as there is room on the uC EEPROM.

I will release a firmware HEX file in the next days, as testing proceeds.

I welcome all your feedback.
Paolo IK1ZYW

PS: do not ask for an all-in-one display+microphone, it is out of question.

14. Re: [817keypad] New gadget: external display

Yahoo group: 817keypad
Date: 2010-04-10 09:50:14 UTC
From: Paolo Cravero IK1ZYW
Topic: 12 Message: 14

Hello Cristian,

> I saw also the display made by some ham in VK or ZL but I do not
> like the Motorola micro's very much.

the reason I was asked to adapt my keypad code to a remote display is that the Motorola micro is old and VK/ZL HAMs do not support it anymore.

> I wonder if it may be combined with your keypad to form some sort
> of remote front panel? It would be super nice (maybe by using a
> bigger microcontroller) .

It is possible to use both the keypad and the display at the same time. I only need 8 + 6 I/O lines. Maybe even the ATtiny2313 could do it, but then the program memory is too limited.
I will look into bigger Atmel micros... maybe.

> As a suggestion I think making the second line of the display as
> on the FT itself would be very good.

"Cosmetics", as a YO researcher working in Stockholm (KTH) used to say. HI.
I have added an "S" display with numbers S0-S9 and S+: the FT817 returns only 4 bits, 16 levels for signal strength. Let me see if I can read something else too...

There seems no way to read the battery/supply voltage through CAT commands.

73,
Paolo IK1ZYW

15. re Kits?

Yahoo group: 817keypad
Date: 2010-06-03 06:45:11 UTC
From: Angus
Topic: 15 Message: 15

Hi are you doing a kit for the FT-817 keyboard? and if you are how much is it please including postage to UK?
I am taking by the idea and have will be adding a 2nd FT-817 here soon so I can work my QRP station full duplex on the satellites, so these would be very useful.
The system is great, I keep looking here and cant understand why more people are not taking on the ideas.
Angus M0IKB

16. Re: New gadget: external display

Yahoo group: 817keypad
Date: 2010-06-03 06:55:41 UTC
From: Angus
Topic: 12 Message: 16

Hi just thinking of the external display, and just wonder if it id possible to use this display with a transverter and have that show, the transverters frequency. It would take the FT-817 correct frequency and add the correct frequency of the transverter. You would need a way of inputing the transverter frequency for example 23cms.
The FT-817 is being used at 144.200mhz and the transverter's input is at 1152mhz, the dispaly adds the FT-817 correct frequency to the transverters ofset and the display shows 1296.200mhz
Would this be possible, it would make it very useful for those who go out portable with transverters for the higher bands, and make it very easy to know where they should be TX or RX, and yes I do understand that transverters do sometimes shift there LO frequency.
But the idea if it could be made would be very useful, to many people and allow a very wide range of options
regards
Gus M0IKB

17. R: [817keypad] re Kits?

Yahoo group: 817keypad
Date: 2010-06-03 08:45:42 UTC
From: Paolo Cravero IK1ZYW
Topic: 17 Message: 17

Good morning Angus,
even though I am quickly running out of the ATtiny2313 stock (I have to place a backorder for them these days), yes, I offer a "bag of components" to build the keypad.

It includes the programmed chip and the keyboard too. See the webpage at http://spazioinwind.libero.it/ik1zyw/hardware/keypad/order.html for options. There is no PCB in the "kit", but I have done the artwork in Eagle and I can share it. My plan was to release the artwork freely few months ago, but then other things took priority.

A custom firmware can be arranged. In case contact me off the list.

On the "full bag of parts" option, postage to UK/EU is 2.5 euro for normal mail, or 7 euro for registered letter (with tracking code). Combined shipping is possible.

73,
Paolo IK1ZYW

--

GQRP #12058 + www.paolocravero.tk + I QRP #476

* Build your external keypad for FT-817(ND) *

18. Re: [817keypad] Re: New gadget: external display

Yahoo group: 817keypad
Date: 2010-06-03 09:03:57 UTC
From: Paolo Cravero IK1ZYW
Topic: 12 Message: 18

Hello again.

Angus, the suggestion about the transverter is very interesting. Not owning one, I haven't thought of that opportunity.

At the present time it would be possible for the LCD firmware to add a static IF frequency and display it. Since there is no keypad attached (not enough program space in the tiny2313), it might be possible to dynamically program the IF with a trick, like this:

if the IF frequency is 1153 MHz
tune 817 to 141.153,00 MHz or 11.153,00 MHz
press a button on the LCD and the IF value is stored in the LCD hardware

if the IF is 1154.23 MHz then
tune to xy1.154,23 MHz
and so on.

This would allow to reprogram the display with any IF (4,2 digits).

But it is time to disclose that I am considering to upgrade the keypad hardware with a larger chip so that a keypad+LCD can be built. Why? Because I loved playing with the LCD display. :-) The impact on cost would be a couple more of Euro for the larger chip (ATmega88), and the non compulsory LCD (10 Euro). Keypad-only users would benefit from the larger program area with more functions. Keypad+LCD could use the transverter feature too. Then I might run a batch of PCBs too. I will post updates as soon as I get to work on it.

Paolo IK1ZYW

19. Extended onboard memories (15 to 25)

Yahoo group: 817keypad
Date: 2010-06-04 08:25:51 UTC
From: ik1zyw
Topic: 19 Message: 19

I have been asked to develop a custom firmware for a DXpedition. Requirements where:
- quick band/mode change
- split control

Band/mode combinations are for 9 bands with two modes, summing up to 18 combinations. Since the standard firmware allowed 15 (or 16 if static) onboard memories, I wrote the code to use all the available Flash memory and give the operator 25 dynamic locations.

These 25 memories have to be programmed once by the operator, and they are retained after keypad power-off. They are organized in two banks, accessed from the main menu with key "#" and key "D".

The same firmware also carries A/B, A=B, direct dial and mode set. Unused keys are locked too, so that they don't produce invalid frequency input.

More static memories could be built in, but you would loose the ability to reprogram them once out on the field.

73,
Paolo IK1ZYW

20. Re: R: [817keypad] re Kits?

Yahoo group: 817keypad
Date: 2010-08-29 11:50:59 UTC
From: Simon
Topic: 17 Message: 20

Paolo,

I too would be very interested in a kit version of the external keyboard and/or keyboard/display unit. I do have some bits that I obtained from the ZL/VK that designed the remote display with the Motorola chip, but I am also not a fan of Motorola/Freescale micros.

I have on hand one or two ATtiny2313 and ATmega48/88/168/328 chips I could use. Is it possible to obtain your original code to see if maybe I could adapt it to the ATmega series with keypad and display?

My eventual plan is to install the FT-817 on my pushbike and go walkabout (well actually rideabout), whilst still protecting the delicate radio from the elements, so a remote interface would be a big plus.

Love your work and your commitment, especially with a family that needs you too.

Regards,
Simon VK4TSC

--- In 817keypad@yahoogroups.com, Paolo Cravero IK1ZYW <ik1zyw@...> wrote:
>
> Good morning Angus,
> even though I am quickly running out of the ATtiny2313 stock (I have to place a backorder for them these days), yes, I offer a "bag of components" to build the keypad.
>
> It includes the programmed chip and the keyboard too. See the webpage at http://spazioinwind.libero.it/ik1zyw/hardware/keypad/order.html for options. There is no PCB in the "kit", but I have done the artwork in Eagle and I can share it. My plan was to release the artwork freely few months ago, but then other things took priority.
>
> A custom firmware can be arranged. In case contact me off the list.
>
> On the "full bag of parts" option, postage to UK/EU is 2.5 euro for normal mail, or 7 euro for registered letter (with tracking code). Combined shipping is possible.
>
> 73,
> Paolo IK1ZYW
>
> --
>
> GQRP #12058 + www.paolocravero.tk + I QRP #476
>
> * Build your external keypad for FT-817(ND) *
>

21. Ready to go

Yahoo group: 817keypad
Date: 2010-08-29 20:11:30 UTC
From: Paolo Cravero IK1ZYW
Topic: 21 Message: 21

Dear 817keypad members,
I am back from holidays and I will get back to your emails, that were sent both privately and through the list.

I was surprised to see a sudden spike in subscription requests to the group throughout August. I wonder what has "caused" it?!

The work on the combined keypad/display device will continue as I get back into the usual work/family/hobby routine.

73,
Paolo IK1ZYW

--
GQRP #12058 + www.paolocravero.tk + I QRP #476
* Build your external keypad for FT-817(ND) *

22. Re: [817keypad] Ready to go

Yahoo group: 817keypad
Date: 2010-08-29 20:17:26 UTC
From: Frank H
Topic: 21 Message: 22

This list was mentioned on the FT 817 group list so I expect that generated extra interest.

Frank G1OFA / M0OFA

On 29 August 2010 21:11, Paolo Cravero IK1ZYW <ik1zyw@...> wrote:

```
>
>
> Dear 817keypad members,
> I am back from holidays and I will get back to your emails, that were sent
> both privately and through the list.
>
> I was surprised to see a sudden spike in subscription requests to the group
> throughout August. I wonder what has "caused" it?!
>
> The work on the combined keypad/display device will continue as I get back
> into the usual work/family/hobby routine.
>
> 73,
> Paolo IK1ZYW
>
> --
> GQRP #12058 + www.paolocravero.tk + I QRP #476
> * Build your external keypad for FT-817(ND) *
>
>
>
```

23. Re: [817keypad] re Kits?

Yahoo group: 817keypad
Date: 2010-08-30 09:22:28 UTC
From: Paolo Cravero IK1ZYW
Topic: 17 Message: 23

Simon,

> I too would be very interested in a kit version of
> the external keyboard and/or keyboard/display unit. I do

the keyboard "kit" is available in the form of "bag of parts". I had also drawn a PCB with Eagle and I am available to send out the files if you don't mind etching your own. Otherwise the circuit is simple enough to live on perfboard.

> I have on hand one or two ATtiny2313 and
> ATmega48/88/168/328 chips I could use. Is it possible to
> obtain your original code to see if maybe I could adapt it
> to the ATmega series with keypad and display?

I am currently working on a code for ATmega168 that will combine both keypad and display. That microcontroller has enough program memory to store a good amount of functions too. Moreover I can recycle the work done on the standalone keypad for interactive functions, meaning less time-to-market. As for your question, I am not planning to release the plain source code.

While being the only larger Atmel chip meeting my criterias (USART and DIP package), the ATmega168 does not allow me to mix external XTAL and keypad. I have either to write and test new code or use an external chip for the keypad interface (I2C, PCF8574). I will first test the latter configuration since it adds little extra cost but is less bug-prone.

Now that the Summer heat is gone, I will try to dedicate some hobby night-time in the shack and come up with something working in the next weeks.

Stay tuned!
Paolo IK1ZYW

24. Re: New gadget: external display

Yahoo group: 817keypad
Date: 2010-08-30 10:36:20 UTC
From: lee_humphrey@btinternet.com
Topic: 12 Message: 24

I would also like the keypad/display kit,great idea,cant wait.
Lee

--- In 817keypad@yahoogroups.com, "ik1zyw" <ik1zyw@...> wrote:
>
> Dear FT-817 keypad owners, users, friends,
> I am announcing a soon-to-be-released new gadget for FT-817 series: an external frequency/mode display.
>
> It generated from a direct request of a HAM that operates mainly mobile and needs a replica of the display where it can be easily seen, ie on the dashboard, while radio controls stay near the gear lever. Nothing more.
>
> Using the very same hardware of the keypad, I interfaced a 2x16 LCD display using standard CAT commands so that frequency and mode are displayed remotely.
>
> The update rate is software set, currently at 250 milliseconds.
>
> I will investigate the opportunity to display other info on the second line, and your suggestions are welcome too.
>
> Meanwhile have a look at the preview video I filmed this morning:
> http://www.youtube.com/watch?v=oVdQy0PRF_s
>
> The board holding the ATtiny microcontroller is the one of my keypad. Some one-button controls could be added around the display, mimicking some keypad functions, as long as there is room on the uC EEPROM.
>
> I will release a firmware HEX file in the next days, as testing proceeds.
>
> I welcome all your feedback.
> Paolo IK1ZYW
>
>
> PS: do not ask for an all-in-one display+microphone, it is out of question.
>

25. External display for transverter use

Yahoo group: 817keypad
Date: 2010-08-30 14:18:24 UTC
From: ik1zyw
Topic: 12 Message: 25

--- In 817keypad@yahoogroups.com, "Angus" <angus@...> wrote:

Hello Gus,
as a a programming exercise, to wet my fingers before getting into the combined keypad/display code, I wrote a display firmware variant for transverter use.

I have one question.

> The FT-817 is being used at 144.200mhz and the transverter's input is at 1152mhz, the dispaly adds the FT-817 correct frequency to the transverters ofset and the display shows 1296.200mhz

Do you need to get to (tens of) Hz resolution? For transverter's IF and/or tuning? Or the IF is usually tuned to 1152.000 MHz sharp?

Paolo ZYW

26. Re: [817keypad] External display for transverter use

Yahoo group: 817keypad
Date: 2010-08-30 14:59:41 UTC
From: angus
Topic: 12 Message: 26

Hello Paolo
thanks for the email, no I do not think the display has to show 10s of Hz, if possible yes, but if this is much work then do not worry about it, I will be interested in seeing the first model when it is working.
many thanks
Gus M0IKB

----- Original Message -----
From: ik1zyw
To: 817keypad@yahoogroups.com
Sent: Monday, August 30, 2010 3:18 PM
Subject: [817keypad] External display for transverter use

--- In 817keypad@yahoogroups.com, "Angus" <angus@...> wrote:

Hello Gus,
as a a programming exercise, to wet my fingers before getting into the combined keypad/display code, I wrote a display firmware variant for transverter use.

I have one question.

> The FT-817 is being used at 144.200mhz and the transverter's input is at 1152mhz, the dispaly adds the FT-817 correct frequency to the transverters ofset and the display shows 1296.200mhz

Do you need to get to (tens of) Hz resolution? For transverter's IF and/or tuning? Or the IF is usually tuned to 1152.000 MHz sharp?

Paolo ZYW

27. Re: External display for transverter use

Yahoo group: 817keypad
Date: 2010-09-01 10:38:25 UTC
From: ik1zyw
Topic: 12 Message: 27

Hello (Gus),
I managed to finalize a first (final?) version of the code for "external display for transverter use" using the ATtiny2313 chip and the very same keypad circuit: just plug the display where the keypad goes...

Here's a 3'42" video showing the result:
<http://www.youtube.com/watch?v=2LRbylRr4zw>

Unfortunately youtube compression has degraded the video quality, but you should be able to understand how it works and what it shows.

In short:
- frequency is displayed in kHz, with 1 kHz resolution
- you can program the xverter LO up to 10 kHz resolution reading it from the FT817 VFO, value is stored in EEPROM (survives power-off :-))
- update every 250ms (too fast? too slow?)

Feedback welcome.
Paolo IK1ZYW

28. Re: [817keypad] Re: External display for transverter use

Yahoo group: 817keypad
Date: 2010-09-01 20:53:51 UTC
From: angus
Topic: 12 Message: 28

Now that is really very good Paolo
that is perfect, I am very impressed by the fatures
is there anyone else with any other thoughts on the transverter display?
For me Paolo that is FAB!
regards
Gus M0IKB

----- Original Message -----
From: ik1zyw
To: 817keypad@yahoogroups.com
Sent: Wednesday, September 01, 2010 11:38 AM
Subject: [817keypad] Re: External display for transverter use

Hello (Gus),
I managed to finalize a first (final?) version of the code for "external display for transverter use" using the ATtiny2313 chip and the very same keypad circuit: just plug the display where the keypad goes...

Here's a 3'42" video showing the result:
<http://www.youtube.com/watch?v=2LRbylRr4zw>

Unfortunately youtube compression has degraded the video quality, but you should be able to understand how it works and what it shows.

In short:
- frequency is displayed in kHz, with 1 kHz resolution
- you can program the xverter LO up to 10 kHz resolution reading it from the FT817 VFO, value is stored in EEPROM (survives power-off :-))
- update every 250ms (too fast? too slow?)

Feedback welcome.
Paolo IK1ZYW

29. New keypad pages, updated free firmware

Yahoo group: 817keypad
Date: 2010-09-16 08:54:03 UTC
From: ik1zyw
Topic: 29 Message: 29

Hi,
I have just finished uploading the restyling of keypad web pages at the usual address <http://spazioinwind.libero.it/ik1zyw/hardware/keypad/index.html> .

I have also updated the free firmware for those users that are able to program the chip at home. The new free firmware has 15 onboard memories in place of the 16 static presets to QRP frequencies. It also allows the use of the green status LED. User's Manual has been updated accordingly.

New pages have provision for the remote display and remote control information, but they are still under construction.

73,
Paolo IK1ZYW

30. Remote control on the way

Yahoo group: 817keypad
Date: 2010-10-05 12:37:59 UTC
From: ik1zyw
Topic: 30 Message: 30

Gents,
I am writing to update you about the progress on the remote control (keypad+display) development.

I have already ported interesting functions from the keypad to the remote, like: VFO swap, VFO A=B, mode change, RIT on/off, SPL on/off, direct dial, onboard memories. All of these functions give the operator a feedback/guidance through the LCD display. Of course there is room for the currently selected frequency and mode.

I am about to implement a configuration menu where the user can set some parameters like: CAT rate, frequency readout update frequency (100 to 1500 ms), FT-817 or FT-8x7 operating mode. These settings will be retained after power off, like onboard memories.

I will not forget the transverter display mode too.

The hardware is based on: ATmega168 (may change), PCF8574 and HD44780-compatible display. And the 4x4 matrix keypad. I will send the beta code to anyone able to program the firmware on the mega168 and reproduce the circuit.

If anyone has ideas for the remote control device, please let me know before it's too late :-)

73,
Paolo IK1ZYW

31. Re: [817keypad] Remote control on the way

Yahoo group: 817keypad
Date: 2010-10-05 19:02:56 UTC
From: Cristian Radulescu
Topic: 30 Message: 31

Excelent job Paolo.
I just wait to test the beta version of the firmware. Send it ot me with the schematics.
One question: what do you mean by "remote control device".
7"3's de YO3IAZ, Cristian

--- On Tue, 10/5/10, ik1zyw <ik1zyw@...> wrote:

From: ik1zyw <ik1zyw@...>
Subject: [817keypad] Remote control on the way
To: 817keypad@yahoogroups.com
Date: Tuesday, October 5, 2010, 3:37 PM

Gents,
I am writing to update you about the progress on the remote control (keypad+display) development.

I have already ported interesting functions from the keypad to the remote, like: VFO swap, VFO A=B, mode change, RIT on/off, SPL on/off, direct dial, onboard memories. All of these functions give the operator a feedback/guidance through the LCD display. Of course there is room for the currently selected frequency and mode.

I am about to implement a configuration menu where the user can set some parameters like: CAT rate, frequency readout update frequency (100 to 1500 ms), FT-817 or FT-8x7 operating mode. These settings will be retained after power off, like onboard memories.

I will not forget the transverter display mode too.

The hardware is based on: ATmega168 (may change), PCF8574 and HD44780-compatible display. And the 4x4 matrix keypad. I will send the beta code to anyone able to program the firmware on the mega168 and reproduce the circuit.

If anyone has ideas for the remote control device, please let me know before it's too late :-)

73,
Paolo IK1ZYW

32. Re: Remote control on the way

Yahoo group: 817keypad
Date: 2010-10-06 11:58:39 UTC
From: dl8mcp
Topic: 30 Message: 32

Hi Paolo,

I'm just doing some tests with exactly this hardware configuration.
I would be glad to help with the beta test.

vy 73 de Hermann AJ4ZS / DL8MCP

>
> The hardware is based on: ATmega168 (may change), PCF8574 and HD44780-compatible display. And the 4x4 matrix keypad. I will send the beta code to anyone able to program the firmware on the mega168 and reproduce the circuit.
>
>
> If anyone has ideas for the remote control device, please let me know before it's too late :-)
>
>
> 73,
> Paolo IK1ZYW
>

33. Re:Remote control on the way

Yahoo group: 817keypad
Date: 2010-10-06 12:02:28 UTC
From: Simon Chantrill
Topic: 30 Message: 33

Paolo,

I would love to be able to setup the circuit and software for trial on the FT-817. If you could forward the circuit and code I could dive into it quickly. I should have all the bits floating around in my various stashes.

Thanks for the great work!!
Simon VK4TSC

34. R: [817keypad] Re: Remote control on the way

Yahoo group: 817keypad
Date: 2010-10-06 15:21:18 UTC
From: Paolo Cravero IK1ZYW
Topic: 30 Message: 34

Sirs,
give me a couple of days to draw the diagram on the computer (it's on paper but I have no scanner).

Meanwhile I have implemented a simple "configuration mode", which is accessed by pressing a keypad key while the welcome banner is displayed.

Configuration options are:
- CAT baud rate
- frequency update interval (to some extent)
- extended FT817 functions on/off (otherwise it works on all FT8x7)
- transverter mode

I will upload diagram and .hex/.eep on the Yahoo Group and send a notice.

For Cristian, I am working on a join between the "old" keypad and the more recent standalone LCD. So, you get a frequency readout and some guidance when using the keypad commands on the LCD. It still is wired to the 817!

73,
Paolo IK1ZYW

--
GQRP #12058 + www.paolocravero.tk + I QRP #476
* Build your external keypad for FT-817(ND) *

35. Re: Remote control on the way

Yahoo group: 817keypad
Date: 2010-10-28 13:16:02 UTC
From: scotchmandr
Topic: 30 Message: 35

Mainly I would like to see what Yaesu SHOULD have made. A Mobile display and remote that can be mounted on the car dash. MR/VFO swap, VFO Swap, PWR, and PO/SWR display, Mode, Band. Basically the ability to take my 817 or 897 mobile in the vehical with a "Vehical Separation Kit and Faceplate".

I think Yaesu SHOULD have taken the 857 Faceplate and made a version with a generic firmware and Cat interface to remote all the 8x7 radios... Shame on them! All the new mobiles have a Separation Faceplate kit. they could retrograde a bit and use the 857 faceplate to do the same thing for the 817 and 897.

They did not so you could!

Too much to ask?

Phillip
N8AYE

--- In 817keypad@yahoogroups.com, "ik1zyw" <ik1zyw@...> wrote:
>
> Gents,
> I am writing to update you about the progress on the remote control (keypad+display) development.
>
> I have already ported interesting functions from the keypad to the remote, like: VFO swap, VFO A=B, mode change, RIT on/off, SPL on/off, direct dial, onboard memories. All of these functions give the operator a feedback/guidance through the LCD display. Of course there is room for the currently selected frequency and mode.
>
> I am about to implement a configuration menu where the user can set some parameters like: CAT rate, frequency readout update frequency (100 to 1500 ms), FT-817 or FT-8x7 operating mode. These settings will be retained after power off, like onboard memories.
>
> I will not forget the transverter display mode too.
>
> The hardware is based on: ATmega168 (may change), PCF8574 and HD44780-compatible display. And the 4x4 matrix keypad. I will send the beta code to anyone able to program the firmware on the mega168 and reproduce the circuit.
>
>
> If anyone has ideas for the remote control device, please let me know before it's too late :-)
>
>
> 73,
> Paolo IK1ZYW
>

36. R: [817keypad] Re: Remote control on the way

Yahoo group: 817keypad
Date: 2010-11-03 11:37:15 UTC
From: Paolo Cravero IK1ZYW
Topic: 30 Message: 36

Hello Phillip and Group,
I've been away few days (but I worked on the external display device).

> Mainly I would like to see what Yaesu
> SHOULD have made. A Mobile display and remote that can be
> mounted on the car dash. MR/VFO swap, VFO Swap, PWR, and
> PO/SWR display, Mode, Band. Basically the ability to take my
> 817 or 897 mobile in the vehical with a "Vehical Separation
> Kit and Faceplate".

I see 817 owners are interested in Band switch, which I am going to implement sooner or later in the "remote control". There will be 16 keys, and some of them can be dedicated to those functions (band up/down, mode change).

Other things cannot be done like the MEM/VFO toggle, but you'll have few memories onboard the "remote control" to deal with that (I know they don't support repeater offset and subtones ... no, I will not add support for that).

As for mounting on the car dashboard, you will be able to assemble the cicruit with your preferred layout, even keep the keypad away from the display since it has a 4-wire connection to the main chip.

Lately I have been working 100% on the external display for transverter use, and this helped me to define a circuit layout that will work also on the keypad+display. I will write a report in the next hours.

73,
Paolo ZYW

37. Interactive Frequency Reader - preview video

Yahoo group: 817keypad
Date: 2011-02-21 09:37:42 UTC
From: ik1zyw
Topic: 37 Message: 37

Gents,
I have a good news after being silent for a while.

I have finally had some time to work on the keyboard+display FT-817 accessory, and now I have a firmware almost ready for the public release.

This device has been called "Interactive Frequency Reader", and it upgrades the "Frequency Reader" which has only the display.

Please see the preview video on youtube (3'33")
http://www.youtube.com/watch?v=oBLHr5tVlVI
and give me some feedback.

The current video/firmware includes support for an external transverter, so it shows the microwave frequency instead of VFO. But it can be turned off through the configuration menu.

A summary of current features:
* configuration mode accessed at frequency reader start-up with parameters in EEPROM
* holds baud rate setting
* holds transverter mode on/off
* holds LO+IF and LO-IF math mode
* holds frequency update delay in 15 x 100 ms steps
* holds two L.O. values down to 100 Hz resolution
* direct microwave frequency dial, with invalid FT-817 frequency control
* mode change
* VFO A/B toggle
* VFO A=B
* RIT on/off
* LO value selection (#1 or #2)
* 15 onboard frequency/mode memories

73,
Paolo IK1ZYW

38. Re: [817keypad] Interactive Frequency Reader - preview video

Yahoo group: 817keypad
Date: 2011-02-21 13:08:34 UTC
From: angus
Topic: 37 Message: 38

Bravo Paolo, that is excellent work, you should be very proud of your work. For those who use the FT817 as a transverter driver you have solved very many problems, bravo
ottimo lavoro, complimenti.
regards
Gus M0IKB in Chelyabinsk but not /P :(

----- Original Message -----
From: ik1zyw
To: 817keypad@yahoogroups.com
Sent: Monday, February 21, 2011 9:37 AM
Subject: [817keypad] Interactive Frequency Reader - preview video

Gents,
I have a good news after being silent for a while.

I have finally had some time to work on the keyboard+display FT-817 accessory, and now I have a firmware almost ready for the public release.

This device has been called "Interactive Frequency Reader", and it upgrades the "Frequency Reader" which has only the display.

Please see the preview video on youtube (3'33")
http://www.youtube.com/watch?v=oBLHr5tVlVI
and give me some feedback.

The current video/firmware includes support for an external transverter, so it shows the microwave frequency instead of VFO. But it can be turned off through the configuration menu.

A summary of current features:
* configuration mode accessed at frequency reader start-up with parameters in EEPROM
* holds baud rate setting
* holds transverter mode on/off
* holds LO+IF and LO-IF math mode
* holds frequency update delay in 15 x 100 ms steps
* holds two L.O. values down to 100 Hz resolution
* direct microwave frequency dial, with invalid FT-817 frequency control
* mode change
* VFO A/B toggle
* VFO A=B
* RIT on/off
* LO value selection (#1 or #2)
* 15 onboard frequency/mode memories

73,
Paolo IK1ZYW

39. Display in a full kit

Yahoo group: 817keypad
Date: 2011-02-21 15:39:21 UTC
From: lee_humphrey@btinternet.com
Topic: 39 Message: 39

Hi are you still going to be doing a full kit for the display and remote dispaly.
Lee

40. Re: [817keypad] Display in a full kit

Yahoo group: 817keypad
Date: 2011-02-21 15:58:34 UTC
From: Paolo Cravero IK1ZYW
Topic: 39 Message: 40

Hi Lee.

> Hi are you still going to be doing a full kit for the display and remote
> dispaly.

Most probably yes, excluding the display itself because:
- they are expensive to stock
- they come in toooo many color combinations off eBay
- they are fragile to ship, requiring packaging I am not ready to do on a daily basis
- I doubt I would be able to get a competitive volume discount (but I will try)

Stay tuned :)
Paolo IK1ZYW

41. RE: [817keypad] Display in a full kit

Yahoo group: 817keypad
Date: 2011-02-21 21:11:47 UTC
From: Lee Humphrey
Topic: 39 Message: 41
Attachments: 3 described; binary payloads are missing from this source WARC

Hi well count me in for a full kit,less display.

lee

From: 817keypad@yahoogroups.com [mailto:817keypad@yahoogroups.com] On Behalf Of Paolo Cravero IK1ZYW
Sent: 21 February 2011 15:59
To: 817keypad@yahoogroups.com
Subject: Re: [817keypad] Display in a full kit

Hi Lee.

> Hi are you still going to be doing a full kit for the display and remote
> dispaly.

Most probably yes, excluding the display itself because:
- they are expensive to stock
- they come in toooo many color combinations off eBay
- they are fragile to ship, requiring packaging I am not ready to do on a daily basis
- I doubt I would be able to get a competitive volume discount (but I will try)

Stay tuned :)
Paolo IK1ZYW

No virus found in this incoming message.
Checked by AVG - www.avg.com
Version: 9.0.872 / Virus Database: 271.1.1/3456 - Release Date: 02/20/11 19:34:00

42. Interactive Frequency Reader files uploaded

Yahoo group: 817keypad
Date: 2011-03-11 09:56:22 UTC
From: ik1zyw
Topic: 42 Message: 42

Dear FT-817 keypad (817keypad) subscriber,
I have just uploaded in the Yahoo Groups files section a draft version of the Interactive Frequency Reader user's manual and the latest (and stable) circuit diagram.

They are located at this URL:
<http://groups.yahoo.com/group/817keypad/files/Interactive%20Frequency%20Reader/>

The I.F.R. is based on ATmega168 and joins the flexibility of an external keypad with the interactivity of a dedicated display.

The user's manual will be revised and corrected, but current features are described. Feel free to suggest corrections and additions.

I hope to upload a free firmware soon.

73 and have a nice weekend,
Paolo IK1ZYW

43. Re: [817keypad] Interactive Frequency Reader files uploaded

Yahoo group: 817keypad
Date: 2011-03-11 13:44:00 UTC
From: Cristian Radulescu
Topic: 42 Message: 43

Excelent job Paolo!!!
I will do the hardware this weekend and wait for the firmware. THANKS for your work and for sharing it with us.
One word, at page 7 you state it is compatible with 857 and 897. I remember checking the keyboard only older version on a friend's 897 and it did not work.
Probably you modified some code and it works now. I'll check.
Once again thanks and wait for the f/w.
73's de YO3IAZ, Cristian

From: ik1zyw <ik1zyw@...>
To: 817keypad@yahoogroups.com
Sent: Friday, March 11, 2011 11:56 AM
Subject: [817keypad] Interactive Frequency Reader files uploaded

Dear FT-817 keypad (817keypad) subscriber,
I have just uploaded in the Yahoo Groups files section a draft version of the Interactive Frequency Reader user's manual and the latest (and stable) circuit diagram.

They are located at this URL:
<http://groups.yahoo.com/group/817keypad/files/Interactive%20Frequency%20Reader/>

The I.F.R. is based on ATmega168 and joins the flexibility of an external keypad with the interactivity of a dedicated display.

The user's manual will be revised and corrected, but current features are described. Feel free to suggest corrections and additions.

I hope to upload a free firmware soon.

73 and have a nice weekend,
Paolo IK1ZYW

44. Re: [817keypad] Interactive Frequency Reader files uploaded

Yahoo group: 817keypad
Date: 2011-03-11 14:18:59 UTC
From: Paolo Cravero IK1ZYW
Topic: 42 Message: 44

Hi Cristian.
About the keypad alone and FT8x7, I have had reports that it works also on other models than 817. At least for direct frequency dial it is supposed to work since the protocol is the same amongst the three models. I admit I have yet to see it with my eyes.

That's why on page 7 I wrote "should work", hi hi. The I.F.R. uses only documented CAT commands that are supported by all three models, so there is no reason it should not work at data protocol level. Perhaps timings are different.

I will try to get hold of an 857/897 and try it out. I promise.

But first I will produce a simplified firmware so that early builders can test out their circuits.

Have a nice weekend,
Paolo IK1ZYW

--
GQRP #12058 + www.paolocravero.tk + I QRP #476
* Build your external keypad for FT-817(ND) *

45. New file uploaded to 817keypad

Yahoo group: 817keypad
Date: 2011-03-12 14:15:27 UTC
From: 817keypad@yahoogroups.com
Topic: 45 Message: 45

Hello,

This email message is a notification to let you know that
a file has been uploaded to the Files area of the 817keypad
group.

File : /Interactive Frequency Reader/ifr_free.hex
Uploaded by : ik1zyw <ik1zyw@...>
Description : I.F.R. hex file for ATmega168 - v. 2011-03-12

You can access this file at the URL:
http://groups.yahoo.com/group/817keypad/files/Interactive%20Frequency%20Reader/ifr_free.he
x

To learn more about file sharing for your group, please visit:
http://help.yahoo.com/l/us/yahoo/groups/original/members/web/index.html
Regards,

ik1zyw <ik1zyw@...>

46. I.F.R. bag of parts with molded cable

Yahoo group: 817keypad
Date: 2011-04-05 14:02:01 UTC
From: ik1zyw
Topic: 46 Message: 46

Good morning/afternoon.
I am getting together all bits to release the Interactive Frequency Reader to the general public. The 99% complete manual is up on the website (http://bit.ly/hOzW1y > Interactive Frequency Reader > Downloads).

Firmware development has reached a satisfactory stage, so I have started to collect components to be offered in a "bag of parts".

I have also been able to secure a small stock of cables with Yaesu CAT port MiniDIN8 connector already molded in, which should make life much easier to 20 lucky builders. These can be matched to the basic keypad bag-of-parts too.

That's it for today :-)

Paolo IK1ZYW

47. External tuning knob/control

Yahoo group: 817keypad
Date: 2011-04-29 08:43:28 UTC
From: ik1zyw
Topic: 47 Message: 47

Hello FT817 users,
this time I share with you a new development in my accessories.

Following the suggestion of a keypad owner, Mr. Andrew, I investigated a way to implement an external tuning knob that would overcome the limitations of the small radio main dial.

An optical rotary encoder would be the best component for this task, but they tend to be expensive for an experiment and not readily available. (Yes, I know they can be built from stepper motors, but this wanted to be a quick check.)

In my junk box I located a central-zero potentiometer that was in a VCR jog dial control. Left/right with a spring taking it back to midpoint. I wired it to the analog-to-digital converter of an ATmega168 and successfully controlled the VFO frequency as if I was turning slow/fast the main dial.

If one was to further develop this accessory, the most interesting part would be to define a transfer function between the pot position and the VFO change: both step and update delay can be computed to implement a slow-to-fast tuning. For this first experiment I simply used a linear transfer function giving steps in the 130-1300 Hz range.

This kind of interface requires the microcontroller to have an analog-to-digital converter onboard, so one of the ATmega series used in my Frequency Readers. The ATtiny2313 is not suitable for this option unless I get to use a proper quadrature optical encoder (not planning to invest on it).

If you have a spare central-zero potentiometer and ATmega48/88/168 laying around I can send over a diagram and the compiled firmware.

73,
Paolo IK1ZYW

48. A/B/C functions shown on Interactive Frequency Reader

Yahoo group: 817keypad
Date: 2011-09-01 08:27:14 UTC
From: ik1zyw
Topic: 48 Message: 48

Hello.
After a long silence I have two announcments about my "product line" of FT-817 accessories.

First, on the Frequency Reader and its Interactive F.R. brother I have added what I consider one of the most useful functions of the whole gadget: it can display which A/B/C menu is currently active on the radio.

You can see an example picture on my blog at
<http://ik1zyw.blogspot.com/2011/08/ft-817-remote-f-button-first-picture.html>.

If combined with the Quick Menu Access keypad function, all A/B/C actuated controls become just two keypresses away. There might be a configuration option to turn off this FT-817 only feature, so that the IFR can still be used on FT-857 and FT-897.

This improvement will be available on an advanced firmware sold separately. A stripped down version might be added to the free firmware though.

The second news will be sent in a separate email.

73 for now,
Paolo IK1ZYW

49. FT-8x7 CAT Emulator

Yahoo group: 817keypad
Date: 2011-09-01 11:52:51 UTC
From: ik1zyw
Topic: 49 Message: 49

Here comes the second news.

As announced few days ago on my blog (http://ik1zyw.blogspot.com), I have developed a simple and cheap hardware that emulates the CAT interface of ACC port of a FT-817/FT-857/FT-897 transceiver.

This is useful for testing devices without having a real FT-8x7 at hand. A short circuit on the accessory will not damage radio internals. A software bug will not keep your radio on hold or ruin its settings while you are busy developing or testing your solution.

The FT-8x7 CAT Emulator is based on a Atmel ATtiny2313 microcontroller (the same of my FT-817 keypad) and it accepts all standard documented CAT commands at 9600 baud. Feed it with 12V and the Emulator will power your accessory too, as if it were a real FT-8x7 transceiver.

A LED blinks when a 5-byte sequence is received at the emulator side.

The schematic diagram has been uploaded to the Files section, and is visible on my blog too.

The emulator handles two VFOs with frequency and mode and the Get RX/TX status commands. Other Yaesu officially documented commands have been implemented but do not return data to the CAT accessory, so their usefulness is currently limited.

At powerup the Emulator initializes its internal VFO representations on 14200 USB and on 145500 FM. You may QSY using your accessory (keypad, FR, IFR, computer control software, ...) and the new value will be kept until power off. Since this is a tool meant for testing devices, it always powers up in a known VFO state (14200 USB and 145500 FM).

RX and TX status are returned with a static string, just to give some valid data to the CAT accessory to play with.

Conclusion. This is a blind emulator of the FT-8x7 standard CAT protocol. It feels like hiding your transceiver in a black box and controlling it with an external accessory. But it is indeed useful for testing all sort of CAT devices without having an FT-8x7 at hand. Firmware for ATtiny2313 will be available through my pages soon (and the Files area of the Yahoo Group).

73,
Paolo IK1ZYW

50. Re: External tuning knob/control

Yahoo group: 817keypad
Date: 2011-11-25 23:14:13 UTC
From: Bob Vaughan
Topic: 47 Message: 50

--- In 817keypad@yahoogroups.com, "ik1zyw" <ik1zyw@...> wrote:
>
> Hello FT817 users,
> this time I share with you a new development in my accessories.
>
> Following the suggestion of a keypad owner, Mr. Andrew, I investigated a way to implement an external tuning knob that would overcome the limitations of the small radio main dial.
>
> An optical rotary encoder would be the best component for this task, but they tend to be expensive for an experiment and not readily available. (Yes, I know they can be built from stepper motors, but this wanted to be a quick check.)
>

You could also cannibalize an old ball type mouse or trackball..

Bob
AF6RR

51. Re: [817keypad] Re: External tuning knob/control

Yahoo group: 817keypad
Date: 2011-11-26 14:36:18 UTC
From: Paolo Cravero IK1ZYW
Topic: 47 Message: 51

> You could also cannibalize an old ball type mouse or trackball..

Good point Bob, but that would also mean more electronics around.

In the meantime I have been given a quadrature rotary encoder (mechanical) and interfaced it to the Frequency Reader: on my workbench I have a working external tuning knob! That part is done :-)

Now I am going to work on the software to handle different step sizes, selected by the operator, since now increases are of 100 Hz. As a starting point I will let the operator choose between 0.1, 1, 10, 100, 1000 kHz steps. Probably in the future I will align step sizes with 817's values.

I am planning to do a youtube video of this new feature soon. As soon as the step control is implemented.

73,
Paolo IK1ZYW

52. Frequency Reader with Tuning Knob

Yahoo group: 817keypad
Date: 2012-03-13 11:04:47 UTC
From: ik1zyw
Topic: 52 Message: 52

Gents,
this message is almost a press release about an important improvement of the Frequency Reader accessory for FT-817 -and the like- transceivers.

The "Frequency Reader" is a stand-alone display with three push buttons that allows to read remotely the FT-817 display data and gives minimal user interaction ability.

As of today, the "Frequency Reader" supports a TUNING KNOB which lets you retune the radio remotely. The firmware has been tailored for users of microwave transverters, but nothing prevents using it for the usual V/U/HF operations.
Three buttons do:
- USB/CW mode toggle (no action if in a different mode)
- VFO A/B toggle
- tuning step selection

Tuning step is selected using the F.R. knob and reminds FT-817 internal steps.

Please note.
This new firmware works on a slightly different hardware circuit, on which few connections have been moved around to facilitate the design of PCB.

I will release a demo video in the next days. New diagram and free firmware will follow too.

73,
Paolo IK1ZYW

**Tech details. **
The Frequency Reader polls the radio every second for a frequency change, in case the operator touches the front panel dial knob. If the external knob is rotated, the VFO frequency is updated of a "step" amount every 100 ms. If the knob is rotated very fast, the step is increased accordingly in a linear fashion, allowing faster QSY's.

The knob component, a quadrature rotary encoder, must be selected with care. It should have no detents, or generate one step per detent. If it includes a pushbutton, it can be wired to any of the three required buttons mentioned above.

53. Re: Remote control on the way

Yahoo group: 817keypad
Date: 2012-05-22 22:33:12 UTC
From: markusl700
Topic: 30 Message: 53

> Gents,
> I am writing to update you about the progress on the remote control (keypad+display) development.
>
> I have already ported interesting functions from the keypad to the remote, like: VFO swap, VFO A=B, mode change, RIT on/off, SPL on/off, direct dial, onboard memories. All of these functions give the operator a feedback/guidance through the LCD display. Of course there is room for the currently selected frequency and mode.
>
> I am about to implement a configuration menu where the user can set some parameters like: CAT rate, frequency readout update frequency (100 to 1500 ms), FT-817 or FT-8x7 operating mode. These settings will be retained after power off, like onboard memories.
>
> I will not forget the transverter display mode too.
>
> The hardware is based on: ATmega168 (may change), PCF8574 and HD44780-compatible display. And the 4x4 matrix keypad. I will send the beta code to anyone able to program the firmware on the mega168 and reproduce the circuit.
>
> If anyone has ideas for the remote control device, please let me know before it's too late :-)
>
> 73,
> Paolo IK1ZYW

_____CUT OFF HERE!_____

Hello Paolo,

interested in your projects for such a while (in both directions!), I have also tried similar thing, with my ARDUINO-Board! It is not necessary to use the Firmware the "Arduino-People" used, for the bootload of their "sketches"! I also have an ISP-Loader (6-pin or 10-pin) for "flashing" different microcontrollers from the small ATtiny 2313 up to ATmega 1284P-PU. My favorite controller by the moment is the ATMega 328P-PU, the "Arduino-Typ", cheap and powerfull, under 6 □uro/each. I think this microcontroller is "powerfull" enough for the thing we/you need!

Primerally I wanted to "remote-controll" my FT897-D with the MH-59 DTMF-Microphone, this is possible without any problems, when you have a "controll" what you do, but I have not, when I am "blind-typing" and did not see what happend! But the whole "Controll-Port" is also on the RJ-45 Mike-Connector inclusive +13,8V DC .

So what do you think, to fit a few meters of shielded cable and an external Speaker, so that you/we could drop the whole FT897-D in the trunk compartment? Ideal for modern "small" cars, or like me:
Shack is in the neighbor-room, and I only need a short Cat-5 Cable and/or Connector for monitoring my Yaesu-Rig, without a computer in the living room, without any trouble of my XYL. That will be the ultimative solution. If it is possible to interface the "long wires"

by boosting the 5V-TTL-Bus over a certain lenghts and making 2 of the wires "free" for the "Loudspeaker", it should be possible to remote/making QSO´s over an ordinary Network-cable? What do you think about this? Hope to give you an inspiration,... Also the keypad-version is very interested for me, because I also have an Yaesu FT817-D (the old Modell, with blown-proof & replaced finals!)Please send me the code if possible! My Personal-Mail-Adress is:
db9pz@...

Thanks in advance, Markus - db9pz

54. Re: [817keypad] Re: Remote control on the way

Yahoo group: 817keypad
Date: 2012-05-23 12:43:02 UTC
From: Paolo Cravero IK1ZYW
Topic: 30 Message: 54

Hello Markus and all other readers.
I think I have read your request n the FT897 Yahoo group, otherwise someone else is tryng to do the same thing.

As of today the "remote control", now called "Interactive Frequency Reader" (aka "IFR"), is a reality. There are even a few around the world, even if I have not yet published the free firmware (mainly because it kept evolving and improving). It is based on ATmega168 and the chip is not even full yet ... but I am not going to add features anyway.
Also, even if Arduino was designed 50km from my QTH, I do not own one! :-)

Being a QRP guy, I would say that on the FT817 your LAN cable plan could work, mixing data and audio. For a QRO rig instead you might get into all sorts of RF troubles, unless you are going to listen only. In any case use CAT-6 cable or better if you want to try.

I have used my CAT accessories with cables of 2 metres, but adding a bus transceiver would boost the TTL data lines allowing for longer distances. You can add these to my standard circuits. I still doubt about the RF interference, though.

Lately I have been working with Bluetooth around FT817, and I have successfully virtualized the CAT interface over BT. Next step will be to try to make the IFR go wireless, which does not seem to be a big deal. Then, for your need, just hack a bluetooth headset and you can use your FT8x7 anywhere you are in range. IW1GHG used a jabra bt325s for digital modes.

I will clean up an IFR firmware and send it over to you privately. Please be patient a few days.

73,
Paolo IK1ZYW

PS: my accessories line-up will be: Keypad; Frequency Reader with Knob (optional); Interactive Frequency Reader; Knob-only.

--
GQRP #12058 + www.paolocravero.tk + I QRP #476
* Build your external keypad for FT-817(ND) *

55. Crystal frequency?

Yahoo group: 817keypad
Date: 2012-06-19 22:00:11 UTC
From: Bob Vaughan
Topic: 55 Message: 55

Is the crystal frequency critical in any way?

I have several Arduino boards based on the 328P, all clocked at 16Mhz.

Also, any update on the tuning knob documentation?

Bob
AF6RR

56. Re: [817keypad] Crystal frequency?

Yahoo group: 817keypad
Date: 2012-06-20 10:34:19 UTC
From: Paolo Cravero IK1ZYW
Topic: 55 Message: 56

Hello Bob.
I am waiting an Arduino Nano board to test the 16 MHz crystal and the hardware: a pre-assembled "motherboard" would be very useful for hosting all my accessories. I have also send out two firmware files programmed for 16 MHz but received no feedback so far. The knob or the frequency reader are probably the simplest to get running on an Arduino board, so let me know which firmware I can send you off the list in case you are willing to anticipate my tests: my Nano board is between Far East and the Customs, so I will not get it before two weeks time.

The knob doesn't need much documentation, except for a diagram which will be published soon. I have a complete diagram just uploaded to the Files section <http://groups.yahoo.com/group/817keypad/files/>. From that you have to keep only components needed for your accessory of interest (knob requires the encoder and P1...P3). As of today the stand-alone knob has one button that allows VFO A/B toggle and tunes in 100 Hz steps. It may then reach 3 buttons (for hardware compatibility with the latest Frequency Reader), with yet to be decided functions: mode toggle, fast/slow tuning step, band up/down.

73,

Paolo IK1ZYW

--
GQRP #12058 + www.paolocravero.tk + I QRP #476
* Build your external keypad/display/knob for FT-817(ND) *

57. Re: Crystal frequency?

Yahoo group: 817keypad
Date: 2012-07-02 02:50:50 UTC
From: Bob Vaughan
Topic: 55 Message: 57

--- In 817keypad@yahoogroups.com, Paolo Cravero IK1ZYW <ik1zyw@...> wrote:
>
> Hello Bob.
> I am waiting an Arduino Nano board to test the 16 MHz crystal and the hardware: a pre-assembled "motherboard" would be very useful for hosting all my accessories. I have also send out two firmware files programmed for 16 MHz but received no feedback so far. The knob or the frequency reader are probably the simplest to get running on an Arduino board, so let me know which firmware I can send you off the list in case you are willing to anticipate my tests: my Nano board is between Far East and the Customs, so I will not get it before two weeks time.
>
>
> The knob doesn't need much documentation, except for a diagram which will be published soon. I have a complete diagram just uploaded to the Files section <http://groups.yahoo.com/group/817keypad/files/>. From that you have to keep only components needed for your accessory of interest (knob requires the encoder and P1...P3).
> As of today the stand-alone knob has one button that allows VFO A/B toggle and tunes in 100 Hz steps. It may then reach 3 buttons (for hardware compatibility with the latest Frequency Reader), with yet to be decided functions: mode toggle, fast/slow tuning step, band up/down.
>
>
> 73,
>
> Paolo IK1ZYW
>
> --
> GQRP #12058 + www.paolocravero.tk + I QRP #476
> * Build your external keypad/display/knob for FT-817(ND) *
>

OK, I have on hand several Arduino boards based on the ATmega328p @16Mhz, as well as several ATmega328p's, a couple of ATmega644p's, as well as some TI PCF8754A's.

Thanks to Atmel and TI for the free sample parts.. I got both DIP and SMD versions, and may design a board for the SMD parts at some point.

Keypads and displays came from the local surplus place.

I have everything except the encoder built up on a proto board using a raw 328p @16Mhz, and I'll see if I can pick up an encoder early this week, and maybe a 20Mhz crystal, since they are 20Mhz parts.

You said there are two versions? what are the differences?

Other thoughts: I came across a PICAXE based transverter/PA sequencer design by VK3HZ that might fit in with this project.
http://www.vk3hz.net/sequencer/FT817_Sequencer.pdf

Bob
AF6RR

58. Interactive Frequency Reader with tuning Knob

Yahoo group: 817keypad
Date: 2012-09-13 10:57:15 UTC
From: ik1zyw
Topic: 58 Message: 58

Hello!
Even if development around my FT817 accessories has slowed down, I had planned to finalize the firmware for the Interactive Frequency Reader with Knob, a.k.a. "IFRK". This is an evolution of the original keypad, which also features a 2-line LCD and a tuning knob, built around an ATmega168 microcontroller.

Last night I tested IFRK version C912, which I will try to release in the next week(s) as time allows. Features follow.

IFRK displays: frequency, mode and current A/B/C front panel buttons function. Frequency is sync'ed with the radio every second or so, in case the radio is retuned through front panel controls.

IFRK allows [assigned key]:
- Direct dial [1-9,0]
- Tuning with an external knob
- Mode change [*]
- VFO A/B [A]
- VFO A=B [B]
- Output power control [C]
- Step control (within IFRK) [D]
- Fast tuning, 10x step setting (within IFRK) [0]
- Freq/mode memories x 15 (within IFRK) [#]

IFRK user configuration options:
- CAT baud rate [1,2,3]
- frequency dial down to 100 Hz [A]
- frequency dial restricted to 1 MHz and down [C]
- FT817 advanced features on/off [4]
- IFRK reset to factory settings

Because of little request and personal time constraints, I have dropped from the IFRK the support for microwave transverters (calculation of the actual XV output frequency). That feature is set to stay on current versions of FR and IFR accessories (and their bugfix future releases, if required).

Together with a public release of a fully functional firmware I will shoot a video of IFRK in action as a quick reference before a the user's manual is updated.

As usual my blog at http://ik1zyw.blogspot.com carries intermediate updates between announcments on this reflector.

Thank you for your continued interest in my FT817 accessories.

73,
Paolo IK1ZYW

--
GQRP #12058 + www.paolocravero.tk + I QRP #476
* Build your external knob/display/keypad for FT-817(ND) *

59. Re: Interactive Frequency Reader with tuning Knob

Yahoo group: 817keypad
Date: 2012-09-13 22:09:32 UTC
From: Bob Vaughan
Topic: 58 Message: 59

--- In 817keypad@yahoogroups.com, "ik1zyw" <ik1zyw@...> wrote:
>
> Hello!
> Even if development around my FT817 accessories has slowed down, I had planned to finalize the firmware for the Interactive Frequency Reader with Knob, a.k.a. "IFRK". This is an evolution of the original keypad, which also features a 2-line LCD and a tuning knob, built around an ATmega168 microcontroller.
>
> Last night I tested IFRK version C912, which I will try to release in the next week(s) as time allows. Features follow.
>
>
> IFRK displays: frequency, mode and current A/B/C front panel buttons function. Frequency is sync'ed with the radio every second or so, in case the radio is retuned through front panel controls.
>
>
> IFRK allows [assigned key]:
> - Direct dial [1-9,0]
> - Tuning with an external knob
> - Mode change [*]
> - VFO A/B [A]
> - VFO A=B [B]
> - Output power control [C]
> - Step control (within IFRK) [D]
> - Fast tuning, 10x step setting (within IFRK) [0]
> - Freq/mode memories x 15 (within IFRK) [#]
>
>
> IFRK user configuration options:
> - CAT baud rate [1,2,3]
> - frequency dial down to 100 Hz [A]
> - frequency dial restricted to 1 MHz and down [C]
> - FT817 advanced features on/off [4]
> - IFRK reset to factory settings
>
>
> Because of little request and personal time constraints, I have dropped from the IFRK the support for microwave transverters (calculation of the actual XV output frequency). That feature is set to stay on current versions of FR and IFR accessories (and their bugfix future releases, if required).
>

Hmm.. When I asked about the knob, you said there was a problem with pulse noise when the knob was rotated, otherwise I would have added it to my IFR.. It would be handy, but it is

not critical in any way.

A few things I would like to see in the IFR:

A/B/C panel buttons (and display)

Power control

Antenna relay control

Ability to store power settings, LO#, and antenna F/R in memory slots.

A new LO - LO#0 - (not user definable, permanently defined as a null offset)

BCD output of LO# - (to external RF router)(3 bits)

Basically, I want to be able to work up/down the bands, using a mix of native and transverter modes, using several transverters, without having to worry about LO and power settings each time I QSY.

I am working on a design using CMOS logic to route RF (via Omron PCB type RF relays), PTT, TX INHIBIT, and an ENABLE line for interfacing with external devices. I'm using LM3914 LED bargraph drivers to decode the band data voltage from the radio, and would take those signals and the decoded BCD from the IFR to a set of logic gates to determine the final RF/control signal routing based on current band and LO settings.

I am designing it so that the configuration of the matrix can be easily changed in the field, by moving jumpers, so I won't be using a microcontroller.

For my IFR, I am using the Mega328 in 28 pin DIP for prototyping, but will be using the 32 pin TQFP for the final version, so there will be a few more extra i/o pins available. There is also the option of using another I2C expander.

Bob
AF6RR

60. Re: [817keypad] Re: Interactive Frequency Reader with tuning Knob

Yahoo group: 817keypad
Date: 2012-09-14 11:48:14 UTC
From: Paolo Cravero IK1ZYW
Topic: 58 Message: 60

Hello Bob.
I am splitting my reply in two parts.

> Hmm.. When I asked about the knob, you said there was a problem with pulse noise

> when the knob was rotated, otherwise I would have added it to my IFR.. It would
> be handy, but it is not critical in any way.

Correct. I didn't report back with my troubleshooting efforts.

I tried many things on my circuits side, like softening the TTL command signal or reducing its voltage, separating power supplies with batteries, ... but nothing changed: a weak click is produced every time the FT817 is retuned through the CAT port.

Yes, it occurs at EVERY retuning, INCLUDING those generated on a PC, so the "offending" action does not lie in my circuit(s) but rather within the FT817 itself.

The fact is that with one simple retune the pulse is "lost" in between relay clicking sounds and band noise differences. Then a retuning sequence is sent at short intervals (100ms or so), then a weak "machine gun" sound is produced. The sound is audible when wearing headphones but not that much though the loudspeaker. I have not tried looking at AF on the oscilloscope, just in case it is some DC being fed to the audio stage(s) or headphones, which in turn could be eliminated with an high pass filter.

Someone pointed out that a click is a confirmation that the 817 has acquired the retune command. I decided to deliver a firmware that includes the external knob, leaving the final user to judge how annoying clicks are.

Hardware-wise moving from IFR to IFRK is now just a matter of adding a proper rotary encoder, which means 4 solder joints on the IFRK.

73,
Paolo

61. New features (was: Re: Interactive Frequency Reader with tuning Knob)

Yahoo group: 817keypad
Date: 2012-09-14 12:57:35 UTC
From: Paolo Cravero IK1ZYW
Topic: 58 Message: 61

Hello.
Second part of my answer

> A few things I would like to see in the IFR:

>
> A/B/C panel buttons (and display)
>
> Power control

What is on IFRK (keypad+display+knob) can be easily ported to IFR (keypad+display). Perhaps it is already there on my hard-disk...
A/B/C function can be displayed but not all remapped on the IFR. Besides, the purpose of my accessories is to extend front panel functions so that more functions are just one keypress away, to make operation easier and faster.

> Antenna relay control
> Ability to store power settings, LO#, and antenna F/R in memory slots.
> A new LO - LO#0 - (not user definable, permanently defined as a null offset)
> BCD output of LO# - (to external RF router)(3 bits)
>
[...cut...]
>
> I am designing it so that the configuration of the matrix can be easily changed
> in the field, by moving jumpers, so I won't be using a microcontroller.

It is all interesting stuff when applied to real-world operation, but your requests can be hardly useful to a large(?) number of operators for whom I have focused my efforts (LO#0 makes sense).

All of these projects have originated from a personal need and have evolved following challenges posed by early adopters (addition of a display, addition of a knob): they took >80% of my hobby time for the last 4 years. I think these circuits have now reached a satisfactory level of usefulness for most interested adopters, so it is time to move on to something different (support to existing products will stay).

Further improvements, as interesting as they can be, are personal customizations which I tend to classify as a software development work rather than a hobby-time project. Unfortunately my hobby-time is already too limited for all the projects I would like to achieve. Sorry for letting you down Bob.

I have written your requests in the I/FR/K wishlist, so maybe one day they will be implemented but I cannot guarantee on a possible delivery time.

73,
Paolo IK1ZYW

62. New features (was: Re: Interactive Frequency Reader with tuning Knob)

Yahoo group: 817keypad
Date: 2012-10-10 06:19:01 UTC
From: Bob Vaughan
Topic: 58 Message: 62

--- In 817keypad@yahoogroups.com, Paolo Cravero IK1ZYW <ik1zyw@...> wrote:
>
> Hello.
> Second part of my answer
>
> > A few things I would like to see in the IFR:
>
> >
> > A/B/C panel buttons (and display)
> >
> > Power control
>
> What is on IFRK (keypad+display+knob) can be easily ported to IFR (keypad+display). Perhaps it is already there on my hard-disk...

> A/B/C function can be displayed but not all remapped on the IFR. Besides, the purpose of my accessories is to extend front panel functions so that more functions are just one keypress away, to make operation easier and faster.
>
> > Antenna relay control

> > Ability to store power settings, LO#, and antenna F/R in memory slots.
> > A new LO - LO#0 - (not user definable, permanently defined as a null offset)
> > BCD output of LO# - (to external RF router)(3 bits)
> >
> [...cut...]
> >
> > I am designing it so that the configuration of the matrix can be easily changed
> > in the field, by moving jumpers, so I won't be using a microcontroller.
>
> It is all interesting stuff when applied to real-world operation, but your requests can be hardly useful to a large(?) number of operators for whom I have focused my efforts (LO#0 makes sense).

By far the most useful thing for me is an output of the LO#.

My main concern is that there is one byte of information (LO#) that exists only within the IFRK, and it is displayed only briefly on the LCD when switching. The lack of access to this one byte of information makes it impossible to slave any external switching to the IFRK, especially when using multiple transverters sharing a IF band, or using an IF band for both transverter and non-transverter operation.

I can work around power settings by setting the power level, and using amplifiers or attenuators to make up the difference, but I can't do any automatic routing unless the external device knows what LO# the IFRK thinks it is using at the time.

I was suggesting a BCD output because that looks like the easiest way to drive an additional display (either 7-segment or individual LEDs, or to drive external devices.

I can also work around antenna switching by using an external switching matrix.

I'm basically trying to reduce the number of operations necessary to switch between transverters and non-transverter bands.

> All of these projects have originated from a personal need and have evolved following challenges posed by early adopters (addition of a display, addition of a knob): they took >80% of my hobby time for the last 4 years. I think these circuits have now reached a satisfactory level of usefulness for most interested adopters, so it is time to move on to something different (support to existing products will stay).
>
> Further improvements, as interesting as they can be, are personal customizations which I tend to classify as a software development work rather than a hobby-time project. Unfortunately my hobby-time is already too limited for all the projects I would like to achieve. Sorry for letting you down Bob.
>
> I have written your requests in the I/FR/K wishlist, so maybe one day they will be implemented but I cannot guarantee on a possible delivery time.
>
> 73,
> Paolo IK1ZYW
>

Bob
AF6RR